

Addendum to the CAPCOA Air Toxics
"Hot Spots" Program's Gasoline
Service Station Industrywide Risk
Assessment Guidelines

Appendix E (Revised - 11/01/01)

**Cancer Risks:
Tables and Graphs
By Scenario
(to 1,000 meters)**

CANCER RISKS - GAS STATIONS

BASIS: Urban Dispersion Coefficients
1,000,000 gallons/year throughput

Distance from station center (meters)	SCENARIO NUMBER:																	
	1	Cancer risk conc. per million (ug/m3)	2	Cancer risk conc. per million (ug/m3)	3A	Cancer risk conc. per million (ug/m3)	3B	Cancer risk conc. per million (ug/m3)	4	Cancer risk conc. per million (ug/m3)	5A	Cancer risk conc. per million (ug/m3)	5B	Cancer risk conc. per million (ug/m3)	6A	Cancer risk conc. per million (ug/m3)	6B	Cancer risk conc. per million (ug/m3)
20	11.86	27.52	8.61	19.98	1.74	4.04	1.70	3.94	10.94	25.38	8.23	19.09	7.92	18.37	1.79	4.15	1.68	3.90
30	11.04	25.61	6.83	15.85	1.40	3.25	1.32	3.06	10.30	23.90	6.08	14.11	5.47	12.69	1.40	3.25	1.19	2.76
40	9.34	21.67	5.30	12.30	1.10	2.55	1.02	2.37	8.63	20.02	4.59	10.65	4.00	9.28	1.08	2.51	0.87	2.02
50	7.45	17.28	4.12	9.56	0.85	1.97	0.79	1.83	6.87	15.94	3.54	8.21	3.06	7.10	0.84	1.95	0.67	1.55
60	5.93	13.76	3.27	7.59	0.68	1.58	0.62	1.44	5.46	12.67	2.80	6.50	2.41	5.59	0.66	1.53	0.53	1.23
70	4.78	11.09	2.64	6.12	0.55	1.28	0.50	1.16	4.41	10.23	2.26	5.24	1.95	4.52	0.54	1.25	0.43	1.00
80	3.92	9.09	2.18	5.06	0.45	1.04	0.41	0.95	3.61	8.38	1.87	4.34	1.62	3.76	0.44	1.02	0.35	0.81
90	3.27	7.59	1.82	4.22	0.38	0.88	0.35	0.81	3.01	6.98	1.57	3.64	1.36	3.16	0.37	0.86	0.30	0.70
100	2.76	6.40	1.55	3.60	0.32	0.74	0.29	0.67	2.55	5.92	1.33	3.09	1.16	2.69	0.32	0.74	0.25	0.58
120	2.03	4.71	1.15	2.66	0.24	0.56	0.22	0.51	1.89	4.39	1.01	2.34	0.88	2.04	0.24	0.55	0.19	0.44
140	1.57	3.64	0.90	2.08	0.19	0.43	0.17	0.40	1.46	3.40	0.79	1.83	0.69	1.61	0.18	0.43	0.15	0.35
160	1.25	2.91	0.72	1.67	0.15	0.35	0.14	0.32	1.17	2.71	0.64	1.48	0.56	1.30	0.15	0.34	0.12	0.28
180	1.02	2.38	0.59	1.38	0.12	0.29	0.11	0.27	0.96	2.22	0.53	1.22	0.46	1.07	0.12	0.28	0.10	0.23
200	0.86	1.99	0.50	1.16	0.10	0.24	0.10	0.22	0.80	1.85	0.44	1.03	0.39	0.91	0.10	0.24	0.08	0.20
220	0.73	1.69	0.43	0.99	0.09	0.20	0.08	0.19	0.68	1.58	0.38	0.88	0.33	0.78	0.09	0.20	0.07	0.17
240	0.63	1.45	0.37	0.85	0.08	0.18	0.07	0.17	0.59	1.36	0.33	0.76	0.29	0.67	0.08	0.18	0.06	0.15
260	0.55	1.27	0.32	0.75	0.07	0.15	0.06	0.14	0.51	1.18	0.29	0.67	0.25	0.59	0.07	0.15	0.05	0.13
280	0.48	1.12	0.28	0.66	0.06	0.14	0.06	0.13	0.45	1.04	0.25	0.59	0.23	0.52	0.06	0.14	0.05	0.11
300	0.43	0.99	0.25	0.59	0.05	0.12	0.05	0.11	0.40	0.93	0.23	0.53	0.20	0.47	0.05	0.12	0.04	0.10
400	0.26	0.61	0.16	0.37	0.03	0.08	0.03	0.07	0.25	0.57	0.14	0.33	0.13	0.29	0.03	0.08	0.03	0.06
500	0.18	0.42	0.11	0.25	0.02	0.05	0.02	0.05	0.17	0.39	0.10	0.23	0.09	0.20	0.02	0.05	0.02	0.04
600	0.13	0.31	0.08	0.19	0.02	0.04	0.02	0.04	0.13	0.29	0.07	0.17	0.07	0.15	0.02	0.04	0.01	0.03
700	0.10	0.24	0.06	0.15	0.01	0.03	0.01	0.03	0.10	0.23	0.06	0.13	0.05	0.12	0.01	0.03	0.01	0.03
800	0.08	0.20	0.05	0.12	0.01	0.02	0.01	0.02	0.08	0.18	0.05	0.11	0.04	0.10	0.01	0.02	0.01	0.02
900	0.07	0.16	0.04	0.10	0.01	0.02	0.01	0.02	0.07	0.15	0.04	0.09	0.03	0.08	0.01	0.02	0.01	0.02
1000	0.06	0.14	0.04	0.09	0.01	0.02	0.01	0.02	0.06	0.13	0.03	0.08	0.03	0.07	0.01	0.02	0.01	0.01

Scenarios:

Aboveground Storage Tanks

1 - No Controls

2 - Phase 1

3A - Phase I & II w/o Vent Valves

3B - Phase I & II with Vent Valves

Underground Storage Tanks

4 - No Controls

5A - Phase I w/o Vent Valves

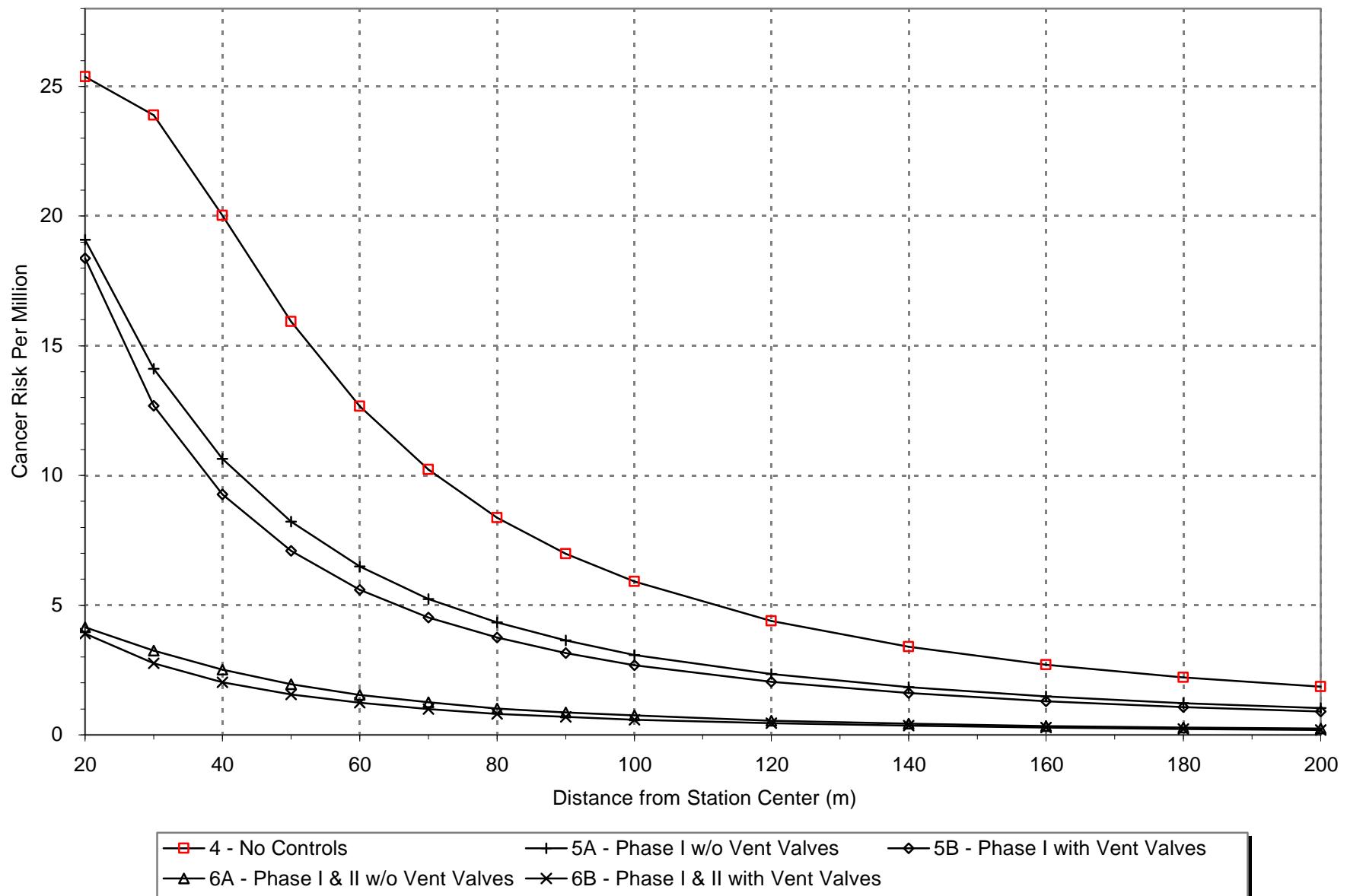
5B - Phase I with Vent Valves

6A - Phase I & II w/o Vent Valves

6B - Phase I & II with Vent Valves

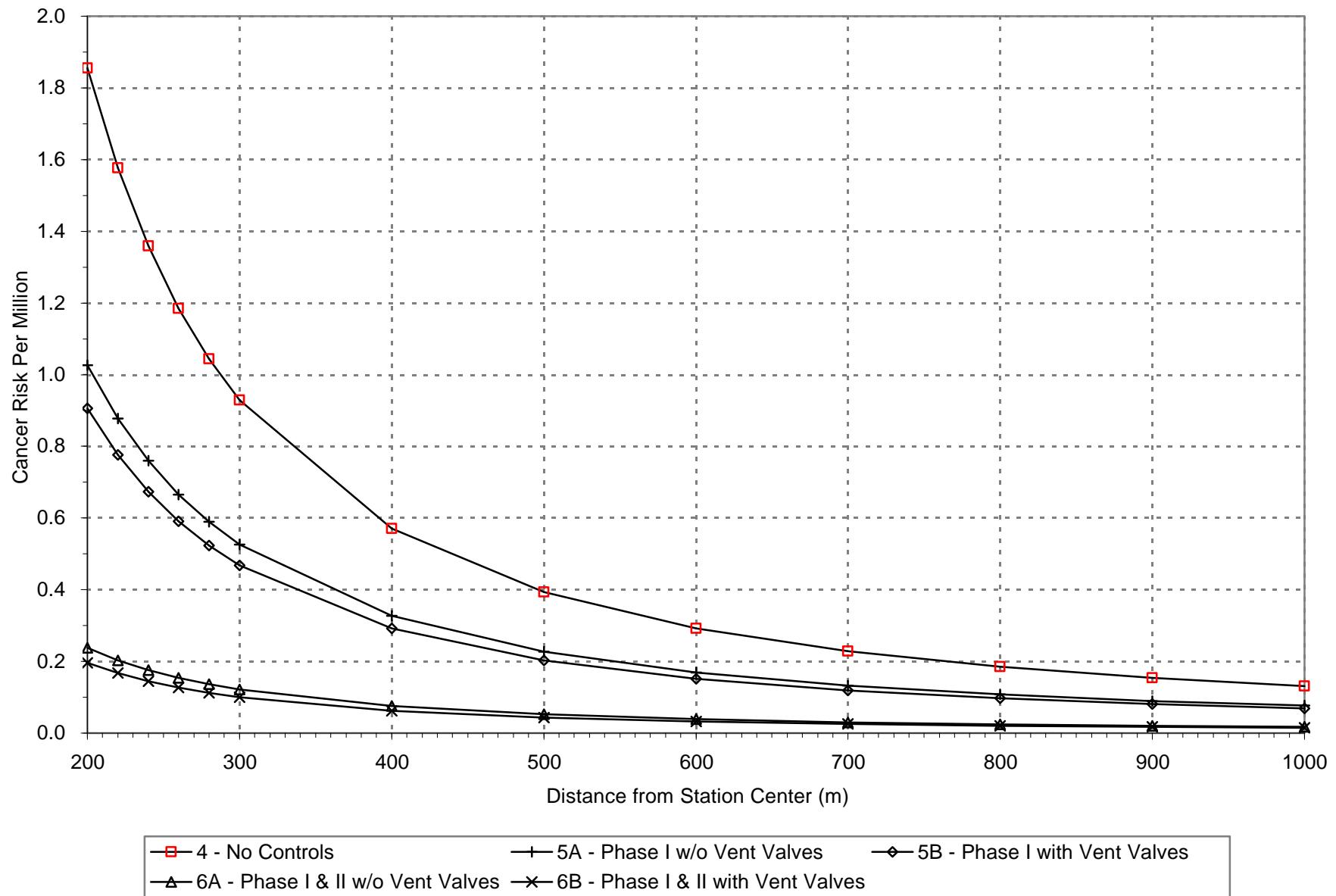
Cancer Risks

Basis: Urban Dispersion Coefficients
1,000,000 gallons of throughput per year



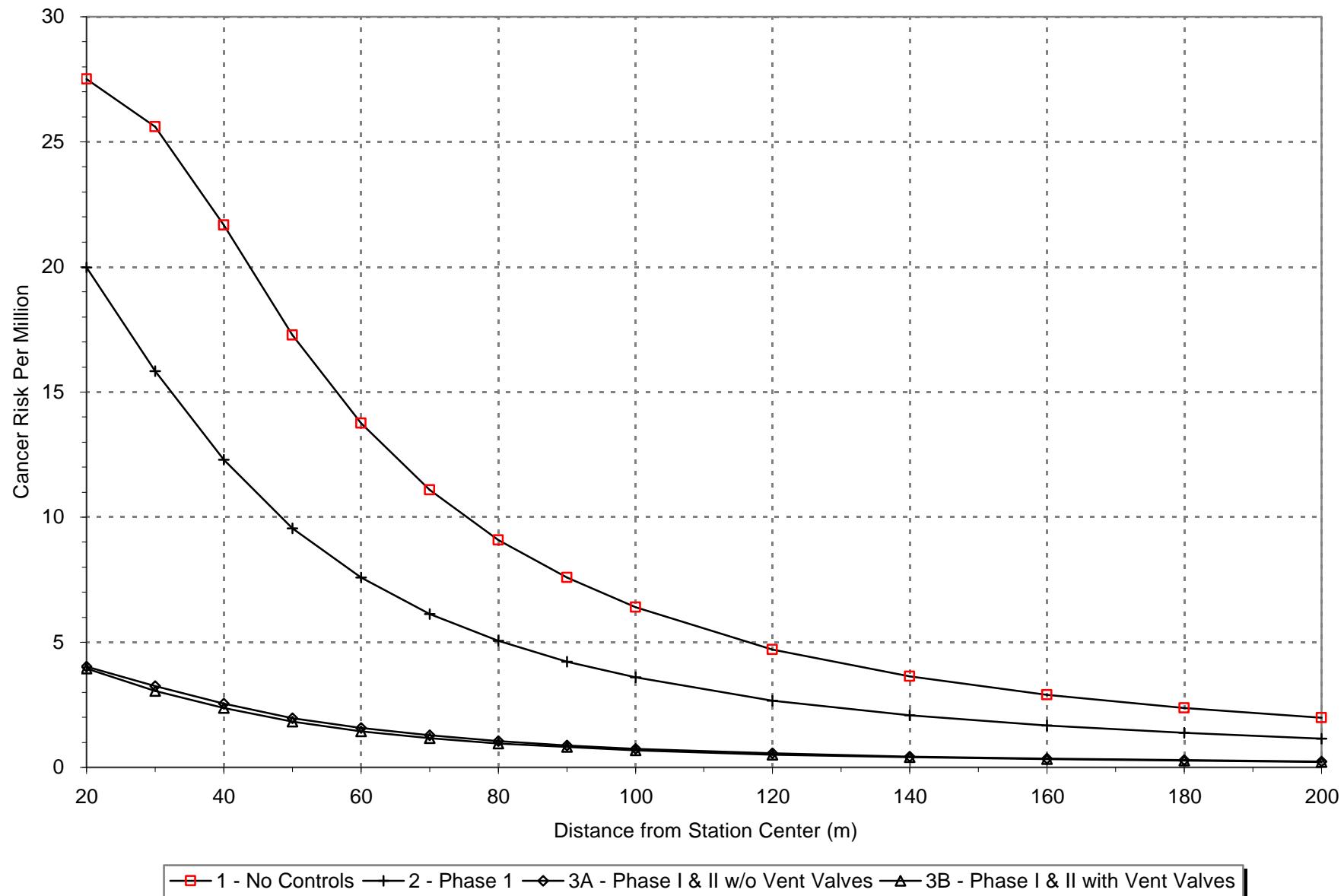
Cancer Risks

Basis: Urban Dispersion Coefficients
1,000,000 gallons of throughput per year



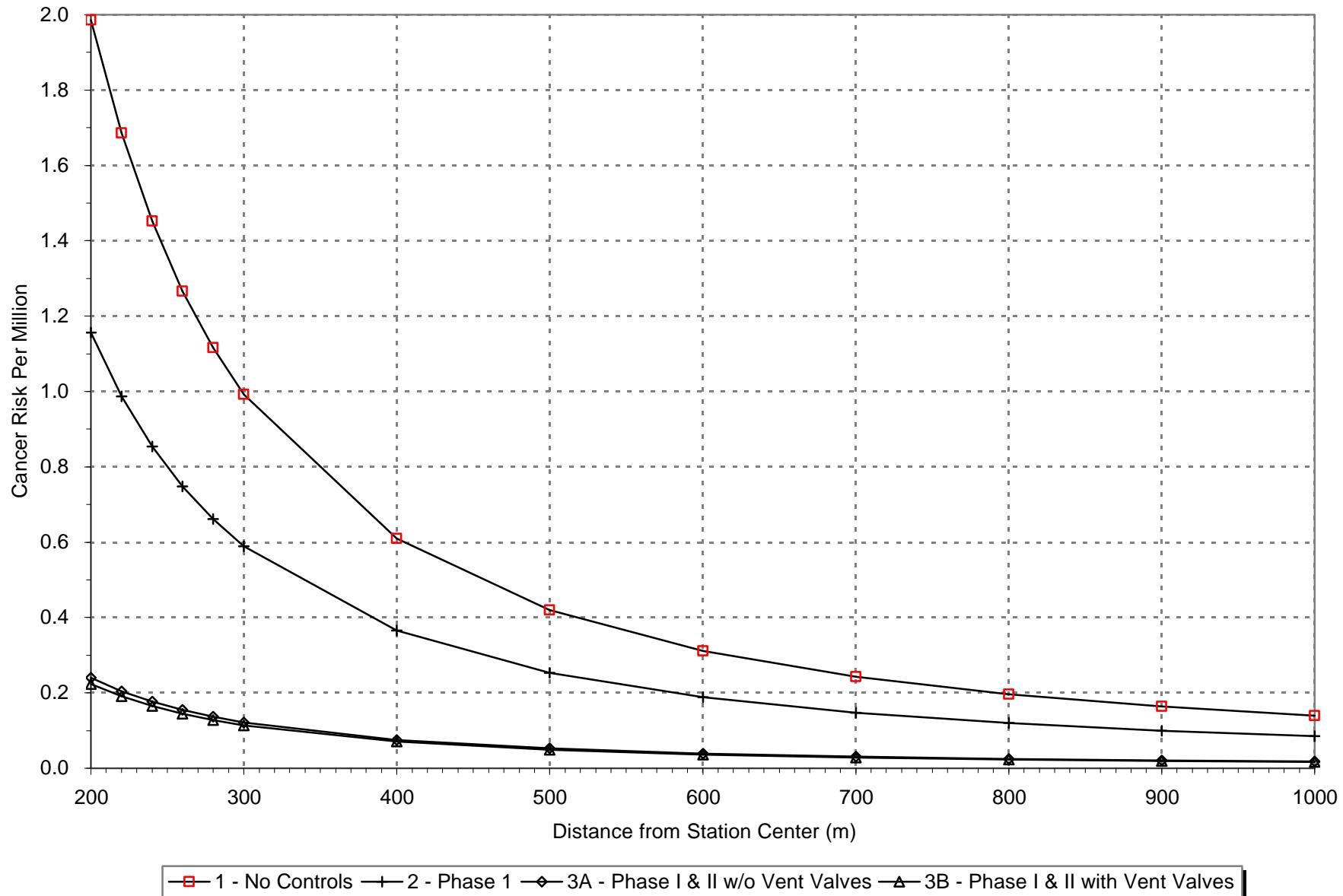
Cancer Risks

Basis: Urban Dispersion Coefficients
1,000,000 gallons of throughput per year



Cancer Risks

Basis: Urban Dispersion Coefficients
1,000,000 gallons of throughput per year



CANCER RISKS - GAS STATIONS

BASIS: Rural Dispersion Coefficients
1,000,000 gallons/year throughput

Distance from station center (meters)	SCENARIO NUMBER:																	
	1		2		3A		3B		4		5A		5B		6A		6B	
	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)	conc.	Cancer risk per (ug/m3)
20	15.66	36.33	15.66	36.33	3.20	7.42	3.20	7.42	15.66	36.33	15.66	36.33	15.66	36.33	3.37	7.82	3.37	7.82
30	13.30	30.86	13.28	30.81	2.70	6.26	2.69	6.24	13.29	30.83	13.28	30.81	13.28	30.81	2.84	6.59	2.84	6.59
40	11.71	27.17	11.49	26.66	2.32	5.38	2.32	5.38	11.68	27.10	11.45	26.56	11.42	26.49	2.44	5.66	2.43	5.64
50	11.02	25.57	10.19	23.64	2.06	4.78	2.05	4.76	10.89	25.26	10.06	23.34	9.94	23.06	2.15	4.99	2.11	4.90
60	10.86	25.20	9.24	21.44	1.88	4.36	1.84	4.27	10.61	24.62	8.98	20.83	8.75	20.30	1.95	4.52	1.86	4.32
70	10.81	25.08	8.47	19.65	1.73	4.01	1.68	3.90	10.45	24.24	8.11	18.82	7.76	18.00	1.78	4.13	1.66	3.85
80	10.68	24.78	7.82	18.14	1.60	3.71	1.54	3.57	10.23	23.73	7.36	17.08	6.95	16.12	1.64	3.80	1.49	3.46
90	10.41	24.15	7.22	16.75	1.49	3.46	1.42	3.29	9.91	22.99	6.71	15.57	6.25	14.50	1.51	3.50	1.34	3.11
100	10.03	23.27	6.68	15.50	1.38	3.20	1.31	3.05	9.50	22.04	6.15	14.27	5.66	13.14	1.39	3.23	1.22	2.83
120	9.09	21.09	5.73	13.30	1.19	2.76	1.12	2.61	8.56	19.86	5.20	12.07	4.72	10.94	1.19	2.77	1.02	2.37
140	8.11	18.81	4.96	11.50	1.03	2.39	0.97	2.25	7.61	17.66	4.46	10.35	4.00	9.29	1.03	2.39	0.87	2.01
160	7.19	16.68	4.32	10.02	0.90	2.09	0.84	1.95	6.74	15.63	3.86	8.97	3.45	8.00	0.90	2.08	0.75	1.73
180	6.38	14.80	3.79	8.79	0.79	1.83	0.74	1.71	5.97	13.85	3.38	7.84	3.01	6.97	0.78	1.82	0.65	1.51
200	5.67	13.16	3.35	7.77	0.70	1.62	0.65	1.51	5.31	12.31	2.98	6.92	2.65	6.14	0.69	1.61	0.57	1.33
220	5.07	11.76	2.98	6.92	0.62	1.44	0.58	1.34	4.74	11.00	2.65	6.15	2.35	5.45	0.62	1.43	0.51	1.18
240	4.55	10.56	2.67	6.20	0.56	1.29	0.52	1.20	4.26	9.88	2.38	5.51	2.10	4.88	0.55	1.28	0.46	1.06
260	4.11	9.54	2.41	5.59	0.50	1.16	0.47	1.09	3.84	8.91	2.14	4.97	1.90	4.40	0.50	1.15	0.41	0.95
280	3.73	8.65	2.18	5.07	0.45	1.05	0.42	0.98	3.48	8.08	1.94	4.50	1.72	3.99	0.45	1.05	0.37	0.86
300	3.40	7.88	1.99	4.62	0.41	0.96	0.39	0.90	3.17	7.36	1.77	4.10	1.57	3.63	0.41	0.95	0.34	0.79
400	2.26	5.24	1.33	3.08	0.28	0.64	0.26	0.60	2.11	4.90	1.18	2.74	1.05	2.43	0.27	0.64	0.23	0.52
500	1.62	3.76	0.96	2.22	0.20	0.46	0.19	0.43	1.52	3.52	0.85	1.98	0.76	1.76	0.20	0.46	0.16	0.38
600	1.22	2.84	0.73	1.69	0.15	0.35	0.14	0.33	1.15	2.66	0.65	1.51	0.58	1.34	0.15	0.35	0.12	0.29
700	0.97	2.24	0.58	1.34	0.12	0.28	0.11	0.26	0.91	2.10	0.52	1.20	0.46	1.07	0.12	0.28	0.10	0.23
800	0.79	1.84	0.48	1.10	0.10	0.23	0.09	0.21	0.74	1.72	0.43	0.99	0.38	0.88	0.10	0.23	0.08	0.19
900	0.66	1.54	0.40	0.93	0.08	0.19	0.08	0.18	0.62	1.44	0.36	0.83	0.32	0.74	0.08	0.19	0.07	0.16
1000	0.57	1.31	0.34	0.79	0.07	0.16	0.07	0.15	0.53	1.23	0.31	0.71	0.27	0.64	0.07	0.16	0.06	0.14

Scenarios:

Aboveground Storage Tanks

1 - No Controls

2 - Phase I

3A - Phase I & II w/o Vent Valves

3B - Phase I & II with Vent Valves

Underground Storage Tanks

4 - No Controls

5A - Phase I w/o Vent Valves

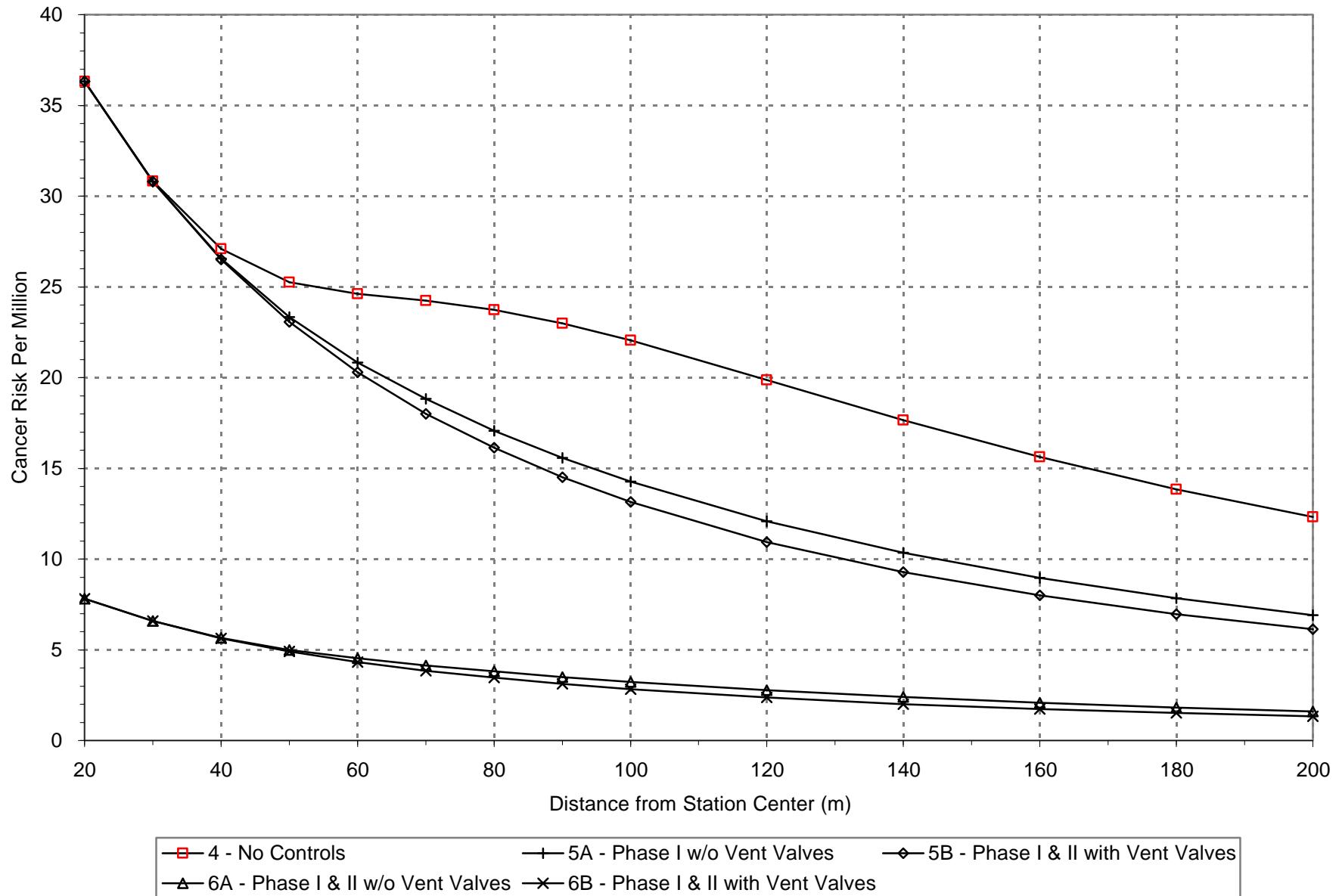
5B - Phase I & II with Vent Valves

6A - Phase I & II w/o Vent Valves

6B - Phase I & II with Vent Valves

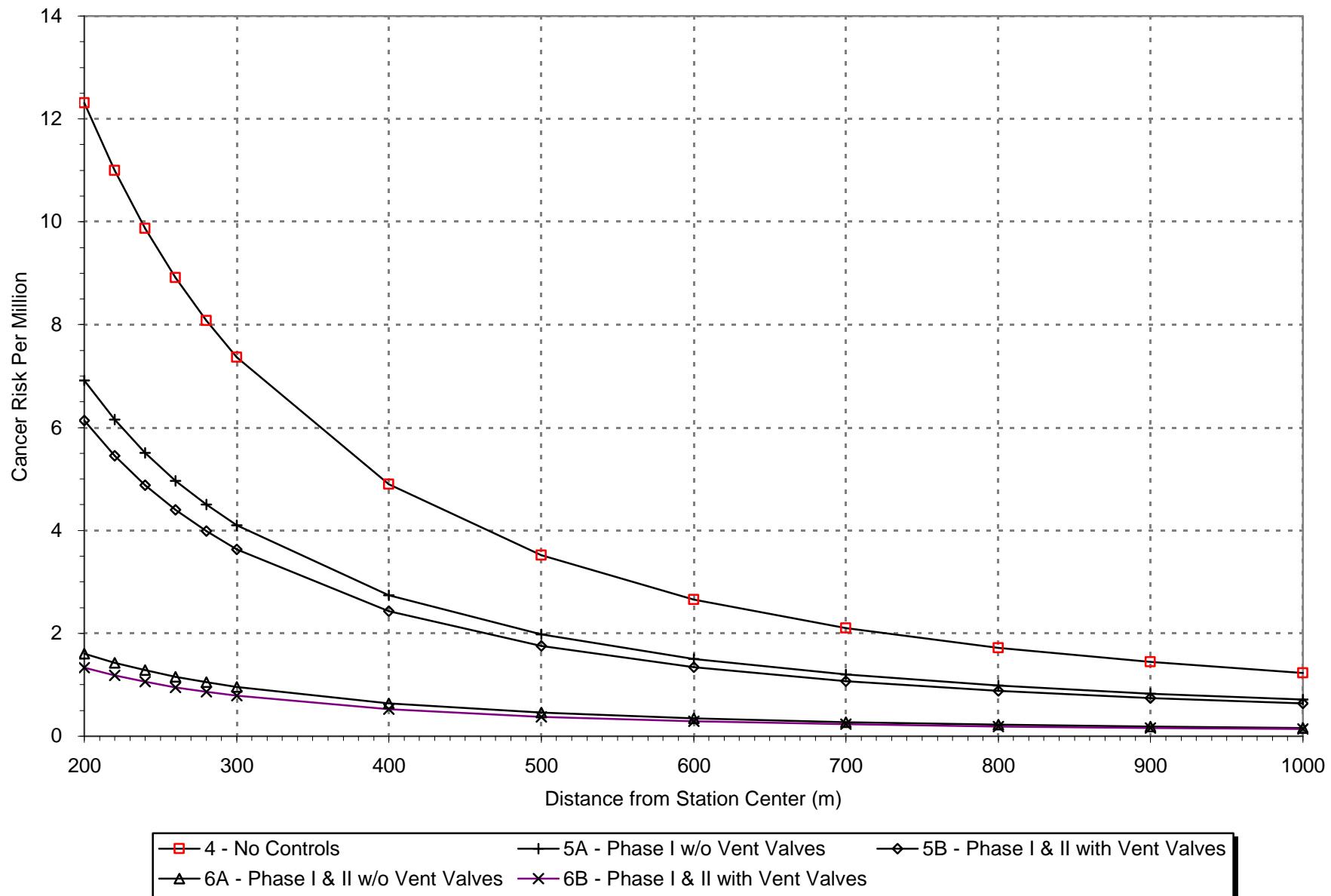
Cancer Risk

Basis: Rural Dispersion Coefficients
1,000,000 gallons of throughput per year



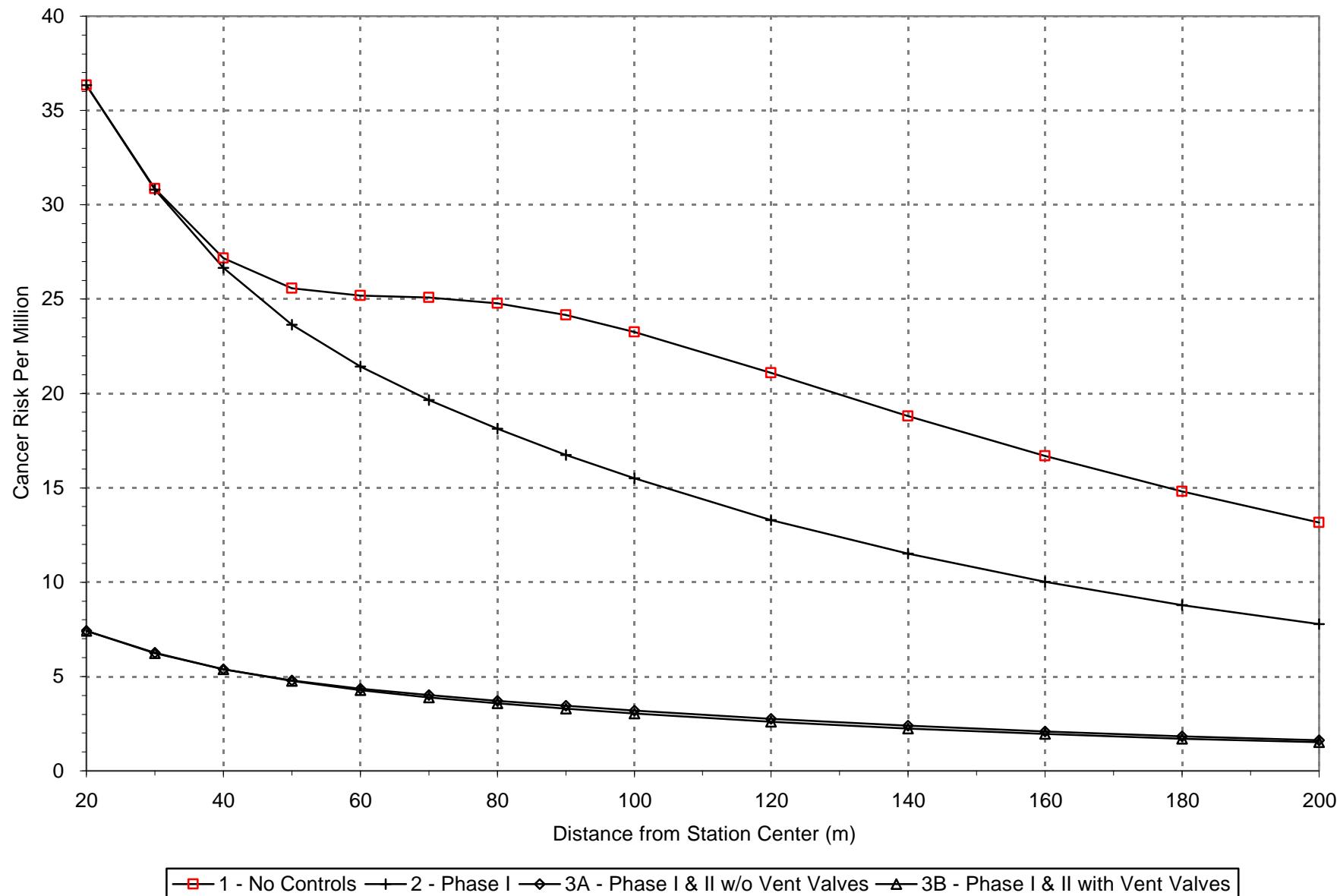
Cancer Risks

Basis: Rural Dispersion Coefficients
1,000,000 gallons of throughput per year



Cancer Risk

Basis: Rural Dispersion Coefficients
1,000,000 gallons of throughput per year



Cancer Risk

Basis: Rural Dispersion Coefficients
1,000,000 gallons of throughput per year

